Current session 01/08/2003

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Last connection: 24/07/03 18*39*38

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- Enhanced Email Delivery of Offline Prints, see INFO EMAILPR
- NEW: Non-Patent Literature file from EPO data, see INFO NPL
..FILE / ..INFO / ..GUIDE
```

Query/Command : file cl esq3

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QUESTEL      - Time in minutes :   0,72
The cost estimation below is based on Questel's
standard price list
                          Estimated cost :     0.67 USD
Cost estimated for the last database search :     0.67 USD
Estimated total session cost              :     0.67 USD

Selected file: INSPEC

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Selected file: JAPIO

COPYRIGHT(C)JAPANESE PATENT OFFICE (JPO) - Published unexamined Japanese
patent applications from December 1976 thru March 2003(PD=2003-03). ).
Images now available! To display image, specify IMG in display format.
Backfile records loaded : primarily for non-japanese priority filings
in IPC sections B,D,E and F - for the period 1989 thru 1997.


Selected file: DWPX

Welcome to Derwent World Patent Index, (c) Derwent Information Ltd
UP (basic), UE(equiv), UA (poly), UB (chem) : updates thru 2003-48
US Patent Applications are in 11 digit format: USYYYYNNNNNNN/pn
New: Derwent Manual Code definition Look-up File - see INFO DWPIMC
Last database update : 2003/07/30 (YYYY/MM/DD)

Cluster : ESQ3
Databases : INSPEC, JAPIO, DWPX

Search statement   1
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Qu ry/Command : nbr /aun maroney andrew

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Query/Command : nbr /aun maroney andrew

1	3	MARONE PA
2	2	MARONE RK
3	1	MARONE S
4	1	MARONETTI P
5	2	MARONEY A
6	1	MARONEY G
7	2	MARONEY GE
8	1	MARONEY J
9	5	MARONEY MJ
10	1	MARONEY N
11	1	MARONEY O
12	1	MARONEY PM
13	1	MARONG G
14	3	MARONGELLI S
15	4	MARONGELLI SR

Some: numbers / Continue: Y / None: N

Query/Command : 5

** SS 1 : Results 2

Continue: Y / N

Query/Command : prt 1-2 fu

---

1 / 2 INSPEC (1 / 2) - ©INSPEC

AN - 7144593

ABN - A2002-04-4255N-006; B2002-02-4320F-025

TI - A 70 nm wide S-band amplifier by cascading TDFA and Raman fibre amplifier.

AU - Masum Thomas J; Crippa D; Maroney A

ED - Sawchuk AA

OS - Harlow Labs.; Nortel Networks; Harlow; UK

SO - OFC 2001. Optical Fiber Communication Conference and Exhibit. Technical Digest Postconference Edition (IEEE Cat. 01CH37171), Pt. vol.3, pp. WDD9-W1-3 vol.3, Published: Washington, DC, USA, 2001, 4 vol.(339+424+774+263) pp.

PU - Opt. Soc. America

CP - USA

DT - PA (Conference Paper)

LA - English

NU - ISBN 1557526559

PY - 2001

CONF - OFC 2001. Optical Fiber Communication Conference and Exhibit. Technical Digest Postconference Edition (IEEE Cat. 01CH37171), Anaheim, CA, USA, 17-22 March 2001, Sponsored by: IEEE/Commun. Soc., IEEE/Lasers & Electro-Opt. Soc., Opt. Soc. America

AB - A hybrid amplifier designed for short wavelength amplification is reported by cascading a Thulium doped fluoride fibre with a discrete Raman amplifier. Gain >20 dB for a bandwidth 1445-1520 nm was achieved. (4 Ref.)

IT - fibre lasers; laser beams; laser noise; optical fibre amplifiers; optical fibre communication; optical transmitters; Raman lasers; thulium

ST - S-band amplifier; Raman fibre amplifier; TDFA; Tm-doped fibre amplifiers; hybrid amplifier; short wavelength amplification; wavelength amplification; Tm-doped fluoride fibre; discrete Raman amplifier; gain; bandwidth; L band; C band; 20 dB; 1445 to 1520 nm

TC - XP (Experimental)

CC - A4255N Fibre lasers and amplifiers;
A4260B Design of specific laser systems;
A4265C Stimulated Raman scattering and spectra; CARS; stimulated Brillouin and stimulated Rayleigh scattering and spectra;
A4260H Laser beam characteristics and interactions;
A4280S Optical communications devices;
B4320F Fibre lasers and amplifiers;
B4330 Laser beam interactions and properties;
B6260C

MF - Tm/ss Tm/el Tm/dop

NM - gain 2.0E+01 dB; wavelength 1.445E-06 to 1.52E-06 m

2 / 2 INSPEC (2 / 2) - ©INSPEC

AN - 6728222

ABN - A2000-22-4280S-028; B2000-11-6260M-188

TI - An analysis of the improvements in OSNR from distributed Raman amplifiers using modern transmission fibres.

AU - Fludger C; Maroney A; Jolley N; Mears R

ED - Li T

OS - Harlow labs.; Nortel Networks; Harlow; UK

SO - Optical Fiber Communication Conference. Technical Digest Postconference Edition. Trends in Optics and Photonics Vol.37 (IEEE Cat. No. 00CH37079), Pt. vol.4, pp. 100-102 vol.4, Published: Washington, DC, USA, 2000, 4 vol.(li+265+385+333+304) pp.

PU - Opt. Soc. America

CP - USA

DT - PA (Conference Paper)

LA - English

NU - ISBN 1557526303

PY - 2000

CONF - Optical Fiber Communication Conference. Technical Digest Postconference Edition. Trends in Optics and Photonics Vol.37 (IEEE Cat. No. 00CH37079), Baltimore, MD, USA, 7-10 March 2000, Sponsored by: IEEE/Commun Soc., IEEE/Lasers & Electro-Opt. Soc., Opt. Soc. America

AB - We present measurements of the Raman efficiency spectra for recent transmission fibres and model the improvement in DWDM system performance using distributed Raman amplification. For 5 spans of 25 dB fibre loss and 1 dB of connector loss, we predict 4.5-6.5 dB improvement in optical signal to noise ratio (OSNR) when using a 500 mW pump, a variation of up to 2 dB depending on fibre type. (5 Ref.)

IT - laser noise; optical fibre amplifiers; optical fibre communication; optical fibre couplers; optical fibre losses; optical pumping; Raman lasers; stimulated Raman scattering; wavelength division multiplexing

ST - OSNR; distributed Raman amplifiers; modern transmission fibres; Raman efficiency spectra; DWDM system performance; distributed Raman amplification; fibre loss; connector loss; mW pump; fibre type; optical signal to noise ratio

TC - PR (Practical); TM (Theoretical/Mathematical); XP (Experimental)

CC - A4280S Optical communications devices;
A4265C Stimulated Raman scattering and spectra; CARS; stimulated Brillouin and stimulated Rayleigh scattering and spectra;
A4255N Fibre lasers and amplifiers;
A4281D Optical propagation, dispersion and attenuation in fibres;
A4281M Fibre couplers and connectors;
B6260M;
B4340 Nonlinear optics and devices;
B4320F Fibre lasers and amplifiers;
B4125 Fibre optics

Query/Command : nbr /aun maroney andrew v

<QOerror code='2' scode='1' num='6'><QOerrormsg>AUN</QOerrormsg><QOerrormsg>You have

Query/Command : nbr /aun maroney andrew v

1	3	MARONE PA
2	2	MARONE RK
3	1	MARONE S
4	1	MARONETTI P
5	2	MARONEY A
6	1	MARONEY G
7	2	MARONEY GE
8	1	MARONEY J
9	5	MARONEY MJ
10	1	MARONEY N
11	1	MARONEY O
12	1	MARONEY PM
13	1	MARONG G
14	3	MARONGELLI S
15	4	MARONGELLI SR

Some: numbers / Continue: Y / None: N

Query/Command : nbr /aun reynilds andrew

<QOerror code='2' scode='1' num='6'><QOerrormsg>AUN</QOerrormsg><QOerrormsg>You have

Query/Command : nbr /aun reynilds andrew

1	6	REYNIERS M
2	4	REYNIERS MF
3	1	REYNIERSE JH
4	1	REYNIERSE P
5	6	REYNIK RJ
6	1	REYNISH WC
7	5	REYNISSON J
8	3	REYNISSON RV
9	1	REYNMARK S
10	1	REYNO LM
11	1	REYNODS AJ
12	1	REYNOLD JR
13	1	REYNOLD SJR
14	1	REYNOLD T
15	1	REYNOLD WF

Some: numbers / Continue: Y / None: N

Query/Command : 11

** SS 2 : Results 1

```
Continue: Y / N
```

Query/Command : prt fu

---

1 / 1 INSPEC (1 / 1) - ©INSPEC

AN - 4921602

ABN - A9509-4725Q-006

TI - Natural convection between two compartments of a stairwell-numerical prediction and comparison with experiment.

AU - Mokhtarzadeh Dehghan MR; Ergin Ozkan S; Reynods AJ

OS - Dept. of Mech. Eng.; Brunel Univ.; Uxbridge; UK

SO - Numerical Heat Transfer, Part A (Applications), vol.27, no.1, pp. 1-17, Jan. 1995

CP - UK

DT - J (Journal Paper)

LA - English

JC - NUHTD6

NU - ISSN 1040-7782

PY - 1995

CPN - 1040-7782/95/ $10.00+.00

AB - This work describes the results of a numerical study of buoyancy-driven flow in a stairwell model. Direct comparisons with the experimental data have been presented. The model is based on the conservation equations of mass, momentum, and energy and the transport equations of turbulence energy and its rate of dissipation. Two different wall thermal boundary conditions, namely, temperature and heat flux, are used and the results are compared. In the case of the heat flux boundary condition, only the convective component of the heat flux at each wall has been used, by first calculating the radiative component and then separating it from the total heat flux. The numerical model predicts the overall features of the flow satisfactorily, and the details of the velocity and temperature field with reasonable accuracy. (18 Ref.)
- Copyright 1995, IEE

IT - natural convection; turbulence

ST - stairwell; numerical prediction; buoyancy-driven flow; experimental comparison; conservation equations of mass; conservation equations of energy; conservation equations of momentum; turbulence energy transport equations; rate of dissipation; wall thermal boundary conditions; temperature flux; heat flux; radiative component; velocity field; temperature field

TC - TM (Theoretical/Mathematical); XP (Experimental)

CC - A4725Q Convection and heat transfer

Query/Command : (photonic 1w band 1w gap) or pbg

```
INSPEC        4158
JAPIO           54
DWPX           154
```

**** SS 3 : Results 4366**

Search statement 4

Query/Command : amplify or amplifier or amplification or amplifies

INSPEC	81686
JAPIO	134326
DWPX	202258

**** SS 4 : Results 418270**

Search statement 5

Query/Command : 3 and 4

INSPEC	67
JAPIO	1
DWPX	6

**** SS 5 : Results 74**

Search statement 6

Query/Command : fiber or fibre

INSPEC	144910
JAPIO	164644
DWPX	370125

**** SS 6 : Results 679679**

Search statement 7

Query/Command : 5 and 6

INSPEC	11
JAPIO	0
DWPX	3

**** SS 7 : Results 14**

Search statement 8

Query/Command : prt 1-14 ti

---

1 / 14 INSPEC (1 / 11) - ©INSPEC

TI - Active and Passive Optical Components for WDM Communications II.

---

2 / 14 INSPEC (2 / 11) - ©INSPEC

TI - Superluminal pulse propagation in linear and nonlinear photonic grating structures.

---

3 / 14 INSPEC (3 / 11) - ©INSPEC

TI - Doppler difference velocimetry using a 2-core photonic crystal **fibre**.

---

4 / 14 INSPEC (4 / 11) - ©INSPEC

TI - Supercontinuum generation, four-wave mixing, and fission of higher-order solitons in photonic-crystal fibers.

---

5 / 14 INSPEC (5 / 11) - ©INSPEC

TI - Frequency-tunable supercontinuum generation in photonic-crystal fibers by femtosecond pulses of an optical parametric **amplifier**.

---

6 / 14 INSPEC (6 / 11) - ©INSPEC

TI - Active and Passive Optical Components for WDM Communication.

---

7 / 14 INSPEC.(7 / 11) - ©INSPEC

TI - Experimental and theoretical analysis of supercontinuum generation in a photonic crystal **fiber** pumped with 60 ps pump pulses.

---

8 / 14 INSPEC (8 / 11) - ©INSPEC

TI - Very first evidence of propagation in a modified chemical vapour deposition **photonic-band-gap fibre** (Bragg type).

---

9 / 14 INSPEC (9 / 11) - ©INSPEC

TI - Technical Digest Symposium on Optical **Fiber** Measurements, 2000 (NIST SP 953).

---

10 / 14 INSPEC (10 / 11) - ©INSPEC

TI - Northern Optics 2000. Joint Meeting of the Optical Societies of the Nordic Countries.

---

11 / 14 INSPEC (11 / 11) - ©INSPEC

TI - Organic waveguide devices for photonic use.

---

12 / 14 DWPX (1 / 3) - ©Thomson Derwent - image

TI - **Photonic band-gap** light-emitting **fiber** for laser, has lattice structures with multiple high refractive index inclusions which limit photon emission along axial directions parallel to **fiber** length

---

13 / 14 DWPX (2 / 3) - ©Thomson Derwent - image

TI - Photonic device for e.g. optical N-to-N cross-connect comprises silicon semiconductor-based superlattice having repeat units including optically active layer with rare earth ion species

---

14 / 14 DWPX (3 / 3) - ©Thomson Derwent - image

TI - **Photonic band gap fiber** for communication purposes and for **fiber** laser or **fiber amplifier** applications

Query/Command : prt 6 12 14 fu

---

6 / 14 INSPEC (6 / 11) - ©INSPEC

AN - 7249236

ABN - A2002-11-0130C-032; B2002-06-0100-012

TI - Active and Passive Optical Components for WDM Communication.

SO - Proceedings of the SPIE - The International Society for Optical Engineering, vol.4532, 2001

PU - SPIE-Int. Soc. Opt. Eng

CP - USA

DT - C (Conference Proceeding); J (Journal Paper)

LA - English

JC - PSISDG

NU - ISSN 0277-786X; ISBN 0819442569

PY - 2001

CONF - Active and Passive Optical Components for WDM Communication, Denver, CO, USA, 21-24 Aug. 2001, Sponsored by: SPIE

CPN - 01/ $15.00

AB - The following topics are dealt with: transmission sources-modulators and laser diodes; photonic switches; waveguide devices, functional devices, fibers etc.; receiver technologies; photonic bandgap materials, devices, and fibers; dispersion compensation technologies; filter technologies; module, interconnection, and fabrication technology; optical **amplifier** technologies; and optical networks and systems technologies.

IT - optical communication equipment; optical fibre networks; optical filters; optical interconnections; optical receivers; optical switches; optical transmitters; photonic band gap; semiconductor optical amplifiers; wavelength division multiplexing

ST - WDM communication; active optical components; passive optical components; transmission sources; modulators; laser diodes; photonic switches; waveguide devices; functional devices; fibers; receiver technologies; photonic bandgap materials; dispersion compensation technologies; filter technologies; module; interconnection; fabrication technology; optical amplifier technologies; optical networks; systems technologies

CC - A0130C Conference proceedings;
A4280S Optical communications devices;
B0100 General electrical engineering topics;
B6260M;
B6260C

CPR -

---

12 / 14 DWPX (1 / 3) - ©Thomson Derwent - image

AN - 2003-015928 [01]

XP - N2003-011863

TI - **Photonic band-gap** light-emitting **fiber** for laser, has lattice structures with multiple high refractive index inclusions which limit photon emission along axial directions parallel to **fiber** length

DC - P81 V07

PA - (VOEV/) VOEVODKIN G
(INTE-) INTELLIGENT OPTICAL SYSTEMS INC

IN - VOEVODKIN G

NP - 2

NC - 1

PN - US20020102081 A1 20020801 DW2003-01 G02B-006/16 6p *
AP: 2001US-0774967 20010131

US6470127 B2 20021022 DW2003-01 G02B-006/02
AP: 2001US-0774967 20010131

PR - 2001US-0774967 20010131

IC - G02B-006/02 G02B-006/16

AB - US20020102081 A
NOVELTY - Two-dimensional light guiding dielectric crystal lattice structures have multiple high refractive index inclusions (31) which limit the manifold of emission modes to those that emit photons only in the axial direction parallel to the **fiber** length.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for optical **fiber amplifier** apparatus.
USE - For use in laser, **amplifier** and optical device application.
ADVANTAGE - Increases fluorescence and scintillation collection efficiency by limiting photon emission to axial direction parallel with the **fiber** length and also

```
  DWPX                      54
```

**** SS 8 : Results 747**

```
Search statement   9
```

Query/Command : 8 and 4

```
  INSPEC                    24
  JAPIO                      1
  DWPX                       5
```

**** SS 9 : Results 30**

```
Search statement  10
```

Query/Command : 6 and 9

```
  INSPEC                     1
  JAPIO                      0
  DWPX                       2
```

**** SS 10 : Results 3**

```
Search statement  11
```

Query/Command : prt 1-3 fu

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1 / 3 INSPEC (1 / 1) - ©INSPEC

AN	-	6893356
ABN	-	A2001-10-4281-006; B2001-05-4125-043
TI	-	Very first evidence of propagation in a modified chemical vapour deposition photonic-band-gap **fibre** (Bragg type).
AU	-	Brechet F; Auguste JL; Marcou J; Roy P; Pagnoux D; Blondy JM; Monnom G; Dussardier B
OS	-	Inst. de Recherche en Commun. Opt. et Microondes; CNRS; Limoges; France
SO	-	Conference Digest. 2000 Conference on Lasers and Electro-Optics Europe (Cat. No.00TH8505), pp. 1 pp., Published: Piscataway, NJ, USA, 2000, xii+394 pp.
PU	-	IEEE
CP	-	USA
DT	-	PA (Conference Paper)
LA	-	English
NU	-	ISBN 0780363191
PY	-	2000

CONF - Conference Digest. 2000 Conference on Lasers and Electro-Optics Europe (Cat. No.00TH8505), Nice, France, 10-15 Sept. 2000, Sponsored by: Eur. Phys. Soc./IEEE/Lasers & Electro-Opt. Soc., Opt. Soc. America, Quantum Electron. & Opt. Division

CPN - 0 7803 6319 1/2000/ $10.00

AB - Summary form only given. We show the first depressed-core-index photonic-band-gap (DCI-**PBG**) **fibre** manufactured by means of the classical MCVD technique. It has been designed to propagate a robust zero dispersion single mode at wavelengths as short as 1 mu m. The main applications deal with non-linear optics: soliton propagation, parametric **amplification** and oscillators, this **fibre** consists in a low-index cylindrical core surrounded by a cladding made of layers with alternating high and low indices, which values are higher than that of the core. It has been theoretically demonstrated in a previous paper that such a **fibre** can propagate one single guided mode. We have designed the DCI-**PBG** **fibre** for simultaneously obtaining a suitable coupling to standard fibres and achieving a zero dispersion at lambda 0=1.06 mu m by the aim of a two dimensions scalar cylindrical finite-difference beam propagation method (2D FD-BPM) associated to the Wijnand's method. The chromatic dispersion of the guided mode is presented at the conference. (2 Ref.)

IT - chemical vapour deposition; finite difference methods; optical fibre cladding; optical fibre couplers; optical fibre dispersion; optical fibre fabrication; optical parametric amplifiers; optical parametric oscillators; optical solitons; photonic band gap

ST - propagation; modified chemical vapour deposition-band-gap fibre; Bragg type fibre; depressed-core-index photonic-band-gap fibre; classical MCVD technique; robust zero dispersion single mode; nonlinear optics; soliton propagation; parametric amplification; parametric oscillators; low-index cylindrical core; cladding; single guided mode; coupling; standard fibres; zero dispersion; scalar cylindrical finite-difference beam propagation method; chromatic dispersion; guided mode; photonic-band-gap fibre; 1 mum; 1.06 mum

TC - TM (Theoretical/Mathematical); XP (Experimental)

CC - A4281D Optical propagation, dispersion and attenuation in fibres;
A4281B Optical fibre fabrication, cladding, splicing, joining;
A4270Q;
A8115H Chemical vapour deposition;
A4265K Optical harmonic generation, frequency conversion, parametric oscillation and amplification;
A4265S Optical solitons;
A4281M Fibre couplers and connectors;
A0260 Numerical approximation and analysis;
B4125 Fibre optics;
B0520F Vapour deposition;
B4340K;
B4340S;
B0290P Differential equations

NM - wavelength 1.0E-06 m; wavelength 1.06E-06 m

XR - 2000-097580

XA - C2000-028345

XP - N2000-075404

TI - Photonic band gap **fiber** for communication purposes and for **fiber** laser or **fiber** **amplifier** applications

DC - L03 P81 V07 V08

PA - (BARK/) BARKOU S E
(BJAR/) BJARKLEV A O
(BROE/) BROENG J
(CRYS-) CRYSTAL FIBRE AS

IN - BARKOU SE; BJARKLEV AO; BROENG J

NP - 5

NC - 87

PN - WO9964904 A1 19991216 DW2000-08 G02B-006/12 Eng 159 *
AP: 1999WO-DK00193 19990330
DSNW: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW
DSRW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW

AU9930260 A 19991230 DW2000-22 G02B-006/12
FD: Based on WO9964904
AP: 1999AU-0030260 19990330

EP1086393 A1 20010328 DW2001-18 G02B-006/12 Eng
FD: Based on WO9964904
AP: 1999EP-0911645 19990330; 1999WO-DK00193 19990330
DSR: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

JP2002517794 W 20020618 DW2002-42 G02B-006/20 160
FD: Based on WO9964904
AP: 1999WO-DK00193 19990330; 2000JP-0553843 19990330

AU-755223 B 20021205 DW2003-05 G02B-006/12
FD: Previous Publ. AU9930260; Based on WO9964904
AP: 1999AU-0030260 19990330

PR - 1998DK-0000779 19980609

IC - G02B-006/12 G02B-006/20 H01S-003/06

AB - WO9964904 A
NOVELTY - Optical **fiber** comprises a core and a cladding region with two-dimensionally periodic structure(s) comprising primary, elongated elements each with a center axis extending in the longitudinal direction of the waveguide. The primary elements have a refractive index lower than a refractive index of any material adjacent to the primary or elongated elements.
DETAILED DESCRIPTION - An optical **fiber** with a waveguide structure having a

longitudinal direction comprises a core region and a cladding region extending along the longitudinal direction. The cladding region comprises a two-dimensionally periodic structure(s) comprising primary, elongated elements each having a center axis. The primary elements have a refractive index which is lower than the refractive index of any material adjacent to the primary elements or elongated elements. The periodic structure, which is in a cross-section perpendicular to the longitudinal direction, is defined by at least one unit cell. Each unit cell has:
(a) a first circle (circumscribing the polygon) having the largest circular area with its center not positioned outside the unit cell and not enclosed in any part of any primary elements; and
(b) further elongated element(s), which does not cover the center of the first circle, each having an area not exceeding 1/6 of primary element's area and a refractive index.
Alternatively each unit cell, the product of the largest index of refraction within the first circle (nd) and the distance between the center of the first circle of the unit cell and the center of the first circle of an adjacent unit cell is greater than the product of the largest index of refraction positioned outside any of the first circles of the unit cells (nud), the smallest distance between center axes of two primary elements within the periodic structure and the square root of three (preferably 2, 3, 4, 6 or 10). For the elongated elements, the sum of all their areas comprised within the unit cell is larger than 1.2 times the area of the primary element.
INDEPENDENT CLAIMS are also included for:
(A) an optical **fiber** having a cladding region with two-dimensionally periodic structure(s) defined by a unit cell and that for each unit cell, polygon(s) are defined as a first polygon having its vertices at centers of first primary elements and each area of the unit cell, if any, is not comprised within the first polygon and an additional polygon has its vertices at centers of additional primary elements;
(B) sensor for sensing/detecting liquid or gas characteristic(s) comprising a length of optical **fiber**, means for providing the liquid or gas into the void of the core region, means for introducing light into the core region and a light detector emitted from the **fiber**;
(C) a **fiber amplifier** comprising a length of optical **fiber** and a means for providing pump radiation to the dopant material; and
(D) a **fiber** laser for outputting laser radiation comprising a length of optical **fiber**, a means for providing pump radiation to the dopant material and a feedback means for selectively feeding back at least part of the amplified optical signal so as to repeatedly pass the amplified optical signal through the length of the optical **fiber**.
USE - The photonic band gap **fiber** is used in communication purposes and for applications for **fiber** lasers or **fiber** amplifiers.
ADVANTAGE - The periodic cladding structure exhibits a **PBG** effect. The **PBG** guiding fibers are highly flexible and are easy to manufacture. By the **PBG** effect, it is possible to open up forbidden frequencies regions by designing the micro-structured cladding correctly, and by introducing a defect site to localize light within this region. By independently optimizing the cladding and the defect structures, it is possible to tailor the properties of the fibers.
DESCRIPTION OF DRAWING(S) - The figures shows a basic Honeycomb lattice and a corresponding unit cell.(Dwg.5/83)

MC - CPI: L03-F02 L03-G02
EPI: V07-F01A1 V07-F01B1 V07-K01C2 V08-A04C2

UP - 2000-08

UE - 2000-22; 2001-18; 2002-42; 2003-05

UE4 - 2001-04; 2002-07; 2003-01

Query/Command : core and clad????

```
INSPEC                  3882
JAPIO                   8252
DWPX                    9848
```

**** SS 11 : Results 21982**

```
Search statement  12
```

Query/Command : his

```
Databases : INSPEC, JAPIO, DWPX

  SS  Results
   1          2  ..INDEX
     INSPEC      MAROVEY A

   2          1  ..INDEX
     INSPEC      REYNODS AJ

     INSPEC              4158
     JAPIO                 54
     DWPX                 154
   3       4366  (PHOTONIC 1W BAND 1W GAP) OR PBG
     INSPEC             81686
     JAPIO             134326
     DWPX              202258
   4     418270  AMPLIFY OR AMPLIFIER OR AMPLIFICATION OR AMPLIFIES
     INSPEC                67
     JAPIO                  1
     DWPX                   6
   5         74  3 AND   4

     INSPEC            144910
     JAPIO             164644
     DWPX              370125
   6     679679  FIBER OR FIBRE
     INSPEC                11
     JAPIO                  0
     DWPX                   3
   7         14  5 AND   6
     INSPEC               673
     JAPIO                 20
     DWPX                  54
   8        747  PBG
     INSPEC                24
     JAPIO                  1
     DWPX                   5
   9         30  8 AND   4
     INSPEC                 1
     JAPIO                  0
     DWPX                   2

  10          3  6 AND   9
     INSPEC              3882
     JAPIO               8252
     DWPX                9848
```

```
11      21982  CORE AND CLAD????

Search statement  12
```

Query/Command : (3 or 8) and 11 and 4

```
INSPEC                    1
JAPIO                     0
DWPX                      1
```

**** SS 12 : Results 2**

```
Search statement  13
```

Query/Command : prt 1-2 fu

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1 / 2 INSPEC (1 / 1) - ©INSPEC

AN - 6893356

ABN - A2001-10-4281-006; B2001-05-4125-043

TI - Very first evidence of propagation in a modified chemical vapour deposition **photonic-band-gap** fibre (Bragg type).

AU - Brechet F; Auguste JL; Marcou J; Roy P; Pagnoux D; Blondy JM; Monnom G; Dussardier B

OS - Inst. de Recherche en Commun. Opt. et Microondes; CNRS; Limoges; France

SO - Conference Digest. 2000 Conference on Lasers and Electro-Optics Europe (Cat. No.00TH8505), pp. 1 pp., Published: Piscataway, NJ, USA, 2000, xii+394 pp.

PU - IEEE

CP - USA

DT - PA (Conference Paper)

LA - English

NU - ISBN 0780363191

PY - 2000

CONF - Conference Digest. 2000 Conference on Lasers and Electro-Optics Europe (Cat. No.00TH8505), Nice, France, 10-15 Sept. 2000, Sponsored by: Eur. Phys. Soc./IEEE/Lasers & Electro-Opt. Soc., Opt. Soc. America, Quantum Electron. & Opt. Division

CPN - 0 7803 6319 1/2000/ $10.00

AB - Summary form only given. We show the first depressed-**core**-index **photonic-band-gap** (DCI-**PBG**) fibre manufactured by means of the classical MCVD technique. It has been designed to propagate a robust zero dispersion single mode at wavelengths as short as 1 mu m. The main applications deal with non-linear optics: soliton propagation, parametric **amplification** and oscillators, this fibre consists in a low-index cylindrical **core** surrounded by a **cladding** made of layers with alternating high and low indices, which values are higher than that of the **core**. It has been theoretically demonstrated in a previous paper that such a fibre can

propagate one single guided mode. We have designed the DCI-**PBG** fibre for simultaneously obtaining a suitable coupling to standard fibres and achieving a zero dispersion at lambda 0=1.06 mu m by the aim of a two dimensions scalar cylindrical finite-difference beam propagation method (2D FD-BPM) associated to the Wijnand's method. The chromatic dispersion of the guided mode is presented at the conference. (2 Ref.)

IT - chemical vapour deposition; finite difference methods; optical fibre cladding; optical fibre couplers; optical fibre dispersion; optical fibre fabrication; optical parametric amplifiers; optical parametric oscillators; optical solitons; photonic band gap

ST - propagation; modified chemical vapour deposition-band-gap fibre; Bragg type fibre; depressed-core-index photonic-band-gap fibre; classical MCVD technique; robust zero dispersion single mode; nonlinear optics; soliton propagation; parametric amplification; parametric oscillators; low-index cylindrical core; cladding; single guided mode; coupling; standard fibres; zero dispersion; scalar cylindrical finite-difference beam propagation method; chromatic dispersion; guided mode; photonic-band-gap fibre; 1 mum; 1.06 mum

TC - TM (Theoretical/Mathematical); XP (Experimental)

CC - A4281D Optical propagation, dispersion and attenuation in fibres;
A4281B Optical fibre fabrication, cladding, splicing, joining;
A4270Q;
A8115H Chemical vapour deposition;
A4265K Optical harmonic generation, frequency conversion, parametric oscillation and amplification;
A4265S Optical solitons;
A4281M Fibre couplers and connectors;
A0260 Numerical approximation and analysis;
B4125 Fibre optics;
B0520F Vapour deposition;
B4340K;
B4340S;
B0290P Differential equations

NM - wavelength 1.0E-06 m; wavelength 1.06E-06 m

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2 / 2 DWPX (1 / 1) - ©Thomson Derwent - image

AN - 2000-097581 [08]

XR - 2000-097580

XA - C2000-028345

XP - N2000-075404

TI - **Photonic band gap** fiber for communication purposes and for fiber laser or fiber **amplifier** applications

DC - L03 P81 V07 V08

PA - (BARK/) BARKOU S E
(BJAR/) BJARKLEV A O
(BROE/) BROENG J
(CRYS-) CRYSTAL FIBRE AS

IN - BARKOU SE; BJARKLEV AO; BROENG J

NP - 5

NC - 87

PN - WO9964904 A1 19991216 DW2000-08 G02B-006/12 Eng 159 *
AP: 1999WO-DK00193 19990330
DSNW: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW
DSRW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW

AU9930260 A 19991230 DW2000-22 G02B-006/12
FD: Based on WO9964904
AP: 1999AU-0030260 19990330

EP1086393 A1 20010328 DW2001-18 G02B-006/12 Eng
FD: Based on WO9964904
AP: 1999EP-0911645 19990330; 1999WO-DK00193 19990330
DSR: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

JP2002517794 W 20020618 DW2002-42 G02B-006/20 160
FD: Based on WO9964904
AP: 1999WO-DK00193 19990330; 2000JP-0553843 19990330

AU-755223 B 20021205 DW2003-05 G02B-006/12
FD: Previous Publ. AU9930260; Based on WO9964904
AP: 1999AU-0030260 19990330

PR - 1998DK-0000779 19980609

IC - G02B-006/12 G02B-006/20 H01S-003/06

AB - WO9964904 A
NOVELTY - Optical fiber comprises a **core** and a **cladding** region with two-dimensionally periodic structure(s) comprising primary, elongated elements each with a center axis extending in the longitudinal direction of the waveguide. The primary elements have a refractive index lower than a refractive index of any material adjacent to the primary or elongated elements.
DETAILED DESCRIPTION - An optical fiber with a waveguide structure having a longitudinal direction comprises a **core** region and a **cladding** region extending along the longitudinal direction. The **cladding** region comprises a two-dimensionally periodic structure(s) comprising primary, elongated elements each having a center axis. The primary elements have a refractive index which is lower than the refractive index of any material adjacent to the primary elements or elongated elements. The periodic structure, which is in a cross-section perpendicular to the longitudinal direction, is defined by at least one unit cell. Each unit cell has:
(a) a first circle (circumscribing the polygon) having the largest circular area with its center not positioned outside the unit cell and not enclosed in any part of any primary elements; and
(b) further elongated element(s), which does not cover the center of the first circle, each having an area not exceeding 1/6 of primary element's area and a refractive